

REMARKS

The Office Action of August 24, 2007 has been studied in detail along with the references applied and cited by the Examiner. In response, selected claims have been amended (claims 1, 9, 32, 64 and 70) and other claims canceled (3, 6, 13, 33, 65, and 68). The pending claims should be read in conjunction with the accompanying arguments in support of patentability. Further examination and reconsideration of the application as amended are respectfully requested.

THE OFFICE ACTION

Claims 1, 3-7, 9, 11-14, 32-35, 38-40, 64-68 and 70 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 4, 6, 7, 9, 12, 32, 34, 64, 66, 68 and 70 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615).

Claims 38-40 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615) as applied to claim 32 above, and further in view of Perrow (US 6390925).

Claim 11 was rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615) as applied to claim 9 above, and further in view of Draving (US 2275058).

Claims 5, 35 and 67 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615) as applied to claims 1 and 32 above, and further in view of McCarrick et al. (US 5713692).

Claims 3, 13, 33, and 65 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615) as applied to claims 1, 9, 32, and 64 above, and further in view of either Bross (US 2975667) or Turbant et al. (FR 2821906).

REJECTIONS UNDER 35 U.S.C. §112

The Examiner rejected claims 1, 3-7, 9, 11-14, 32-35, 38-40, 64-68 and 70 under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

Applicant has amended independent claims 1, 9, 32, 64, and 70 to include structure and to provide objective criteria to determine permanent plastic deformation of the ring. Also, Applicant's amended independent claims now provide structure and objective criteria for determining how the ring is changed after installation and what the initial configuration was before installation. Applicant submits that the remaining dependent claims, dependent on one of the above referenced independent claims, are definite.

REJECTIONS UNDER 35 U.S.C. §103(a)

The Examiner rejected claims 1, 4, 6, 7, 9, 12, 32, 34, 64, 66, 68 and 70 under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615). These two references are cited by the Examiner as the two common references and are used to reject the independent claims. Additionally, these two references are used in combination with other references to reject all the other remaining claims.

Gerwien et al. describes a fastening device for a bearing of a spindle wherein the spring characteristic of the spring nut element required to hold and to adjust the bearing of the spindle is based on the shape and/or the elastic deformability of the spring nut element. The spring nut element fastened to the spindle produces a predetermined elastic force, so that the bearing of the spindle can be adjusted without play. According to Gerwien et al., tabs are provided to lock the inner ring-shaped disk section of the spring nut element to the spindle. These tabs are bent elastically to engage them in the thread of the spindle, and the resulting elastic force keeps them locked in position, so that the spring nut element cannot work itself loose. Further, as shown in Figure 2, the outer ring-shaped disk section (2) and the inner ring-shaped disk section (3) form a predetermined angle with each other. This angle can be changed elastically by the application of an external force.

The locking ring of Gerwien et al. is designed to be screwed onto a thread and is elastically deformable. The elastic deformation is maintained in the installed state (column 2, line 8). The outer edge zone and a circumferentially interrupted inner engagement zone both slant, in their state prior to installation, from a plane perpendicular to the axis of the locking ring

at an angle towards the axis of the locking ring.

In contrast, the engagement zone of the closed locking ring according to the enclosed independent claims is not elastically, but permanently plastically deformed into an angle toward the axis of the locking ring. Such a permanent plastic deformation is not possible with the ring of Gerwien et al., because the ring of Gerwien et al. is designed to maintain elasticity also in the installed state. For the ring of Gerwien et al. to be plastically deformable upon installation, it would require a different design and material.

The Examiner next cites Euler to show the use of a closed outer edge. However, similar to Gerwien et al., Euler describes a retaining ring (30) including a cone-shaped, resilient rim (32) which defines a Belleville type spring. “The invention as claimed is intended to avoid the shortcomings of prior retaining rings by providing a retaining ring having a cones-shaped resilient rim. A plurality of resilient teeth extends radially from the rim” (refer to column 1, lines 37-40, and claims 1-3). Euler describes the advantages of its retaining ring as providing a substantially continuous circumferential contact with the shaft or housing and with the bearing; “the Belleville-type spring defined by the resilient rim of the retaining ring provides an inherently high spring rate” (column 1, lines 51-56).

Independent claims 1, 9, 32, and 64, all recite wherein in the installed state the radially inner zone is permanently plastically deformed. This feature is not anticipated nor made obvious by Gerwien et al. or Euler either singly or in combination. The cited references do not contain any motivation for the skilled person to replace the elastic deformation of the engagement zone by the claimed plastic deformation in order to achieve the above technical effect. To the contrary, the elastic deformation is essential for the proper functioning of Gerwien et al. and Euler.

In addition, Applicant has added the limitations of claims 3, 13, 33, and 65 to independent claims 1, 9, 32, and 64, respectively. As such, Gerwien et al. and Euler do not anticipate nor make obvious, either singly or in combination, Applicant’s claims as described above. Combining Gerwien et al. with Euler, and with any other of the cited references, would not result in a locking ring as recited above in the amended independent claims.

Furthermore, Turbant et al. describes a split elastic ring. The cited additional reference to Turbant et al. does not contain any motivation for the skilled person to replace the elastic

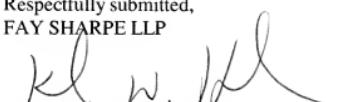
deformation of the engagement zone of the two primary references with a split elastic ring recited in Turbant et al. in order to achieve the above technical effect as claimed in the present application. To the contrary, the split elastic ring teaches away from combining with the teachings of Gerwien et al. and Euler.

Additionally, Bross describes a retaining ring having 'spring' fingers wherein the ring is "stamped in a single piece from spring sheet metal". Adding the teachings of Bross to Gerwien et al. and Euler, even though not suggested, would not result in Applicant's claimed invention. The elastic deformation is essential for the proper functioning of Gerwien et al., Euler, and Bross.

The remaining dependent claims add further elements that distinguish from the cited references. Thus, independent claims 1, 9, 32, 64, and 70, and all claims dependent therefrom, are allowable over this record art. Applicants accordingly request reconsideration and allowance thereof.

Applicant's attorney can be reached at the telephone number below if any further information is needed.

Respectfully submitted,
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